Brookhaven National Laboratory/National Synchrotron Light Source			
Subject:	**Temporary Restrictions to DUV-FEL Operating Envelope**		
Number: LS-SDL-0034	**Revision:** A	**Effective:** 2/11/04	**Page** 1 of 1

Prepared By: Casey/Murphy	Approved By: W.R. Casey	Approved By: J. Murphy

*Approval signatures on file with master copy.

This document provides a formal definition of the current administrative procedures restricting operating currents for the DUV-FEL. It also establishes the process to modify or revoke these restrictions in the future.

Introduction - Area monitoring data and fault studies conducted on 4 different occasions have indicated the potential for exceeding the 100 mRem/year administrative control level (ACL) at the maximum operating current 20 nA currently established in the SDL Operating Envelope. To keep radiation levels well below 100 mRem per year, we have agreed to restrict temporarily operating currents on the DUV-FEL to no more than 1.25 nA (typically obtained at 0.5 nC per pulse with a repetition rate of 2.5 hertz). This restriction has kept annual exposures as indicated by area monitors in the 20 – 40 mrem range. Personnel monitoring data from TLD dosimeters worn by personnel working in the building has indicated much lower exposure, primarily because of the more frequent change of the personnel TLDs compared to the area monitors.

It should be noted that the current dose limitation in the DUV-FEL operating envelope is quite conservative in that the safety limit for DUV-FEL operation is 1250 mrem per year. Projected operations at the maximum allowable current of 20 nA would not exceed this safety limit established in the ASE. However, such operation would require that the administrative control level be increased from 100 to a value of 500 – 1000 mrem per year. This option is not ruled out in the future, but at this stage of DUV-FEL operations, we will maintain the current ACL and limit operations in a manner that keeps annual dose as projected by area monitoring data to less than 100 mrem.

There is an on-going program to improve shielding of beam loss points within the accelerator enclosure, and significant improvement has been made in 2003. Additional improvements will be sought in 2004.

Stipulation - It is understood and agreed that the DUV-FEL will not operate at operating conditions beyond 1.25 nA. Small variations above these values should be avoided, but do not constitute a reporting issue.

These operating restrictions can be relaxed as shielding improvements reduce radiation levels in occupied areas. Fault studies and area monitoring data demonstrating improved radiation levels will be required prior to operation at higher beam currents. Approval by the NSLS Associate Chair for ESH and Associate Chair for Accelerators is required. This document will be revised and re-issued to reflect any new administrative controls that remain. This document will be treated as formal DUV-FEL operating policy and will be retained in the NSLS controlled document system.